US Department Of The Interior
Indian Affairs

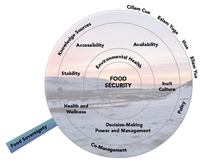
# Tribal Climate Resilience Program — Nationwide Showcase

## INTRODUCTION

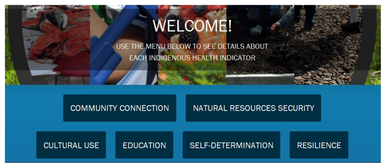
Since 2011, the Bureau of Indian Affairs (BIA) Tribal Climate Resilience Program (TCRP) has been providing funding, training, and technical support to federally-recognized Tribes and Alaska Native communities. Tribes face disproportionate impacts of climate change on culturally important species and lifeways practiced since time immemorial in communication and respect for all other species and natural interconnected processes. Federal and other partners have much to learn from Tribal holistic climate mitigation and adaptation strategies often consciously designed to sustainably support up to seven generations and beyond.

This showcase demonstrates how Tribes in every region of the United States have leveraged BIA TCRP support and a wide variety of other resources to address the unique climate impacts they experience to health, infrastructure, ceremonial and spiritual needs, culturally important "relatives" including certain species of fish and game, and food and medicinal plants. Traditional Knowledges (TKs) also know as Traditional Ecological Knowledge (TEK) incorporates a deep understanding of natural and physical connections between species and processes at nested and overlapping scales, leading to unparalleled, nuanced understandings of the earth's workings that may assist partners who respectfully collaborate to Tribal benefit.

As climate impacts grow in severity and extent, we look to Tribal leadership, sovereignty and self-determination in the 21st century as a beacon for the nation to work together towards restoration of large landscapes, equitable access to high-quality water and natural, local foods, and a bright, clean energy future...




**ICC Alaska Inuit Food Security Conceptual Framework**




**Swinomish Indian Tribal Community Indigenous Health Indicators Tool**


**Menominee SDI Theoretical Model of Sustainability**

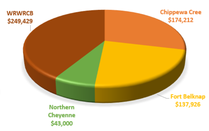
## Rocky Mountain Region

Though only 8 Tribes are located in the Rocky Mountain Region, the total Tribal population on its large reservations are comparable to other BIA Regions. Extreme weather events have increased over the past decades. Tribes in the area have been implementing a variety of strategies to improve energy efficiency, contend with longer dry spells, and innovate with support from both DOI Climate Science Centers ( CSCs ) and Landscape Conservation Cooperatives ( LCCs ).

### CLIMATE CONCERNS

- Heat Waves
- Extended Drought
- Flooding Events
- Changes to Forest Species
- Increase Wildfire
- Wildlife Declines
- Longer, Worse Allergy Season

ROCKY MOUNTAIN TRIBAL AWARDS




### FUNDED STRATEGIES

Both the Chippewa Cree Indians of the Rocky Boy's Reservation and Fort Belknap Indian Community have embarked on a climate adaptation planning process, while the Wind River Tribes of Eastern Shoshone and Northern Arapaho have been working with the North Central Climate Science Center to understand and plan for changing drought intensity and duration. Rocky Boy's youth also held a mini-conference to present how each youth learned about climate impacts and ways to best address challenges. Tribes have also received funding to attend climate training.

The Blackfeet Tribe has been working closely with the Confederated Salish and Kootenai Tribes (CSKT) and First Nations throughout the Great Northern LCC, and through the Roundtable on the Crown of the Continent to develop youth, staff, and leadership training and plan towards a shared, sustainable future. Youth EAGLES learn hydroponics and more - http://bit.ly/2n4KXsU

Although not funded through the BIA TCRP, the Crow Tribe has been working with the U.S. Forest Service and USGS-Flagstaff, among other partners, to explore how climate change is affecting community health and local ecosystems through the observations of tribal elders - http://bit.ly/2lLXi1f

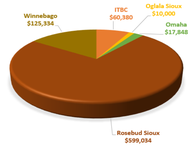
## Great Plains Region

In the Great Plains Region, warmer climate and drying conditions are affecting water availability seasonally, though overall dry land cropping has actual increased, displacing forests and riparian habitat. Tribes are working together through intertribal groups and a variety of federal consortia and partners to restore resilient habitats, protect culturally important species, improve agriculture and ranching practices, manage more variable water supplies, and develop climate training.

### CLIMATE CONCERNS

- Extreme Events
- Development Pressures
- Water Resources
- Invasive Species
- Wildlife Sustainability
- Forest & Habitat Preservation

GREAT PLAINS TRIBAL AWARDS




### FUNDED STRATEGIES

Four Sioux Tribes through the Great Plains Tribal Water Alliance (GPTWA) are developing community-based training and adaptation plans with the support of area Tribal College and University students. GPTWA will also manage a BIA Regional Tribal Liaison hosted at the NC CSC.

The Intertribal Buffalo Council developed buffalo vulnerability assessment for their 58 Tribes. The Rosebud Sioux have partnered with Intertribal Council on Utility Policy (I-COUP) to provide a series of 12 webinars on Applying Indigenuity - indigenous pathways to Community Preparedness, Resilience and Adaptation Planning - http://bit.ly/2kP8HPc

BIA GPL RO Climate POCs and Tribes remain active in the Missouri River Recovery Program to replace lost endangered species habitat, which improves water security and fosters resilience - http://bit.ly/2nk1DIO

Tribes are also active partners with the NOAA Midwest National Integrated Drought Information System (NIDIS) to manage drought risks and impacts in ways that better meet Tribal challenges.

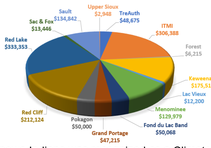
## Midwest Region

In the Midwest Region, warming temperatures and more variable precipitation during sensitive seasons have affected wild rice harvest, moose availability, and increased disease in critical forests. Tribes have coordinated through state intertribal groups and through the support of the U.S. Forest Service and the Northeast Climate Science Center to incorporate traditional knowledges into clean energy and air initiatives and efforts to protect forests and other critical habitat.

### CLIMATE CONCERNS

- Diverse Natural Habitats
- Wild Rice & Big Game
- Culturally Important Forest
- Water Quality
- Air Quality
- Mitigation

MIDWEST TRIBAL AWARDS




### FUNDED STRATEGIES

The Sault Ste. Marie Tribe of Chippewa Indians was recognized as a Climate Action Champion and the Fond du Lac Band of Lake Superior Chippewa was a signer of the 2007 Kyoto Protocol (http://bit.ly/2l4HYge), demonstrating Midwest Tribes leadership in transitioning to a clean energy future.

Off-reservation hunting and gathering concerns for area tribes have been assessed by intertribal groups including the 1854 Treaty Authority and the Great Lakes Indian F&W Commission (GLIFWC).

GLIFWC also assisted in the development of "Gikinoo'wizhiwe Onji Waaban" (Guiding for Tomorrow) or "G-WOW" Initiative, which integrates scientific research with place-based evidence of how climate change affects traditional Ojibwe lifeways and people of all cultures around Lake Superior http://bit.ly/2kPdhwU

MID RO staff and the NC CSC in partnership with the Inter-Tribal Council of Michigan have supported stream monitoring network development and adaptation planning for area tribes. The Red Lake (MN) and Bad River (WI) Bands of Chippewa Indians have developed Climate Adaptation Plans and the Pokegon Band of Potawatomi is building capacity.

## Eastern Region

The Eastern Region is experiencing heat waves, snowstorms, and hurricanes that are affecting health and infrastructure, while longer dry periods are affecting the health and heightening wildfire risks in temperate forests. Regional staff assist Tribes to join the *Weather Ready Ambassadors* program in partnership with other federal agencies. Tribes are also participating in USFS Northern Institute of Applied Climate Science (NIACS) Climate Change Response Framework pilots and adaptation training - https://forestadaptation.org

### CLIMATE CONCERNS

- Ocean Acidification
- Hurricanes and Flooding
- Increased Pests and Diseases
- Increased Wildfire Risks
- Food Security
- Sea Level Rise

EASTERN TRIBAL AWARDS


### FUNDED STRATEGIES

United South and Eastern Tribes, Inc (USET), representing most Eastern Tribes, facilitated a Bi-Coastal Climate Workshop and joined the LCC Council to support Tribal Resilience efforts across large landscapes. USET also partnered with the Eastern Band of Cherokee Indians (EBCI) and the NC Arboretum to develop a private, tribally-focused seed bank to preserve specimens and seeds for generations to come. EBCI staff provide plants and seeds annually to Tribal members at events throughout the year and the NC Arboretum has determined through nutrient panels how healthy various species of native plants are in supporting long-term Tribal health.

Seneca Nation of NY has developed a Native Plant Policy to encourage propagation of native species in landscape design throughout their territories. They are also promoting Healthy First Nations and youth mentorship through their *Food is Our Medicine* Project - http://www.foodisourmedicine.org. The St. Regis Tribe (Akwesasne) Climate Adaptation Plan builds from a Tribal poem - http://bit.ly/2n4LXx2

Federal agencies and the Penobscott Nation participated in the award-winning *Penobscot River Restoration Partnership & Howland Natural Fish Bypass* to benefit 10 sea-run fish species - http://www.penobscotriver.org

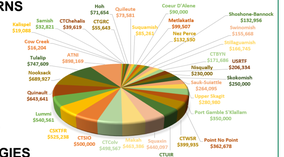
## Northwest Region

In the Northwest Region, higher temperatures affect snowmelt, flooding, stream temperatures, salmon runs, and forest health. Sea level rise, ocean acidification, and toxic blooms are also prime concerns. Northwest Tribes are united through the Affiliated Tribes of the Northwest (ATNI), Columbia River (CRITFC) and Northwest (NWIFC) Fisheries Commissions, North Pacific LCC, BIA NWT RO, States, and the *PNW Tribal Climate Change (TCC) Project* - http://tribalclimate.uoregon.edu

### CLIMATE CONCERNS

- Coastal Erosion
- Sea Level Rise
- Flooding
- Prolong Droughts
- Melting Glaciers
- Extreme Rainfall
- Food Scarcity
- Increased Wildfires

NORTHWEST TRIBAL AWARDS




### FUNDED STRATEGIES

More than a third of BIA TCRP Climate Funding has been awarded to Northwest Tribes, who leverage a variety of collaborative frameworks to share results broadly. ATNI, NP LCC, and BIA NWT RO jointly work with youth and interns to host Climate Training for all area Tribes and build climate capacity and awareness region-wide. The Washington Climate Impacts Group, Adaptation International, the Model Forestry Policy Program, Earth Economics, and Global Ocean Health are just a few of the nonprofit partnerships Northwest Tribes take advantage of towards resilience.

Many individual and joint climate adaptation plans and vulnerability assessments have resulted, as well as, shared geospatial and data platforms. For example, the PNW TCC Tribal Climate Change Guide provides funding, planning, program, science, disaster, and climate career and events - http://tribalclimateguide.uoregon.edu

Some of the many highlights include fish and wildlife vulnerability assessments that have led to improved state and tribal species co-management, plans to create new estuaries as critical habitat is lost to sea level rise, revised human exposure recommendations and subsistence harvest toxicity testing, phased community relocations and natural - rather than structural - coastal protection options, improved traditional knowledge integration into climate science studies, and an enhanced focus on the multiple dimensions of culture and values in comprehensive planning.

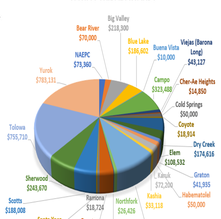
## Pacific Region

In the Pacific Region - California - temperature increases are causing prolonged droughts, warming ocean waters, extreme wildfires, and heat stress. In contrast, "atmospheric river storms" are anticipated to escalate in frequency and intensity, causing severe flooding and debris flows from prior burned areas. BIA staff and Tribes work closely with regional Tribal groups, state and state-wide nonprofit organizations, and CA and other regional LCCs to foster collaboration among the relatively small, but numerous *Rancherias* and a few somewhat larger Tribal reservations.

### CLIMATE CONCERNS

- Warming Ocean Temperature
- Drought
- Coastal Erosion
- Flooding
- Food Scarcity
- Increased Wildfires

PACIFIC TRIBAL AWARDS

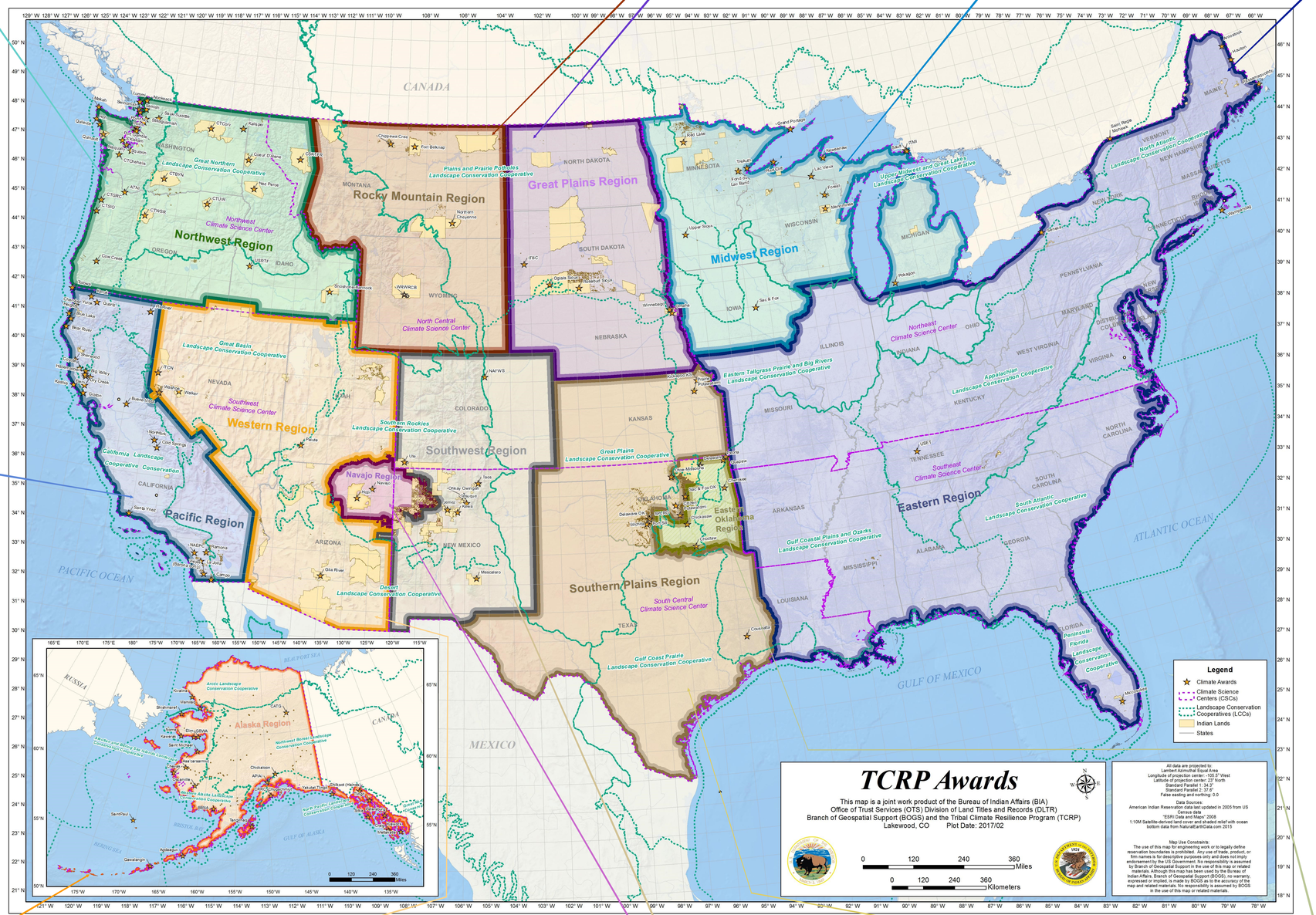



### FUNDED STRATEGIES

BIA TCRP Funding for Tribes in the Pacific Region has supported regional training in both northern and southern California, participation in the CA LCC, fisheries and temperature vulnerability studies, youth elder interviews, plans that incorporate traditional ecological knowledge to aid wildfire risk reduction efforts, ocean monitoring and coastal resource management, how logging and other practices have affect ecosystems, and ways to adapt practices towards more long-term sustainability.

Recently, some CA Tribes have received $50,000 toward capacity building, while others have leveraged funds from other BIA and federal partnerships to expand projects beyond tribal borders.

As a Whitehouse Climate Action Champion, the Blue Lake Rancheria has committed to greenhouse gas emission reductions through solar, energy efficiency, microgrids, and innovative biochar gasification system, while serving as a regional off-grid emergency center - http://bit.ly/2mfvDqg




## TCRP Awards

This map is a joint work product of the Bureau of Indian Affairs (BIA)
Office of Trust Services (OTS) Division of Land Titles and Records (DLTR)
Branch of Geospatial Support (BOGS) and the Tribal Climate Resilience Program (TCRP)
Lakewood, CO Plot Date: 2017/02

All data are projected to:
Lambert Azimuthal Equal Area
Longitude of projection center: -105.5° West
Latitude of projection center: 23° North
Standard Parallel 1: 34.3°
Standard Parallel 2: 37.6°
False easting and northing: 0.0

Data Sources:
American Indian Reservation data last updated in 2005 from US Census data
"ESRI Data and Maps" 2008
1:10M Satellite-derived land cover and shaded relief with ocean bottom data from NaturalEarthData.com 2015

Map Use Constraints:
The use of this map for engineering work or to legally define reservation boundaries is prohibited. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the US Government. No responsibility is assumed by Branch of Geospatial Support in the use of this map or related materials. Although this map has been used by the Bureau of Indian Affairs, Branch of Geospatial Support (BOGS), no warranty, expressed or implied, is made by BOGS as to the accuracy of the map and related materials. No responsibility is assumed by BOGS in the use of this map or related materials.

## BIA TCRP Funding

The BIA TCRP funds federally-recognized Tribes to develop targeted climate training, travel to climate training and to participate in regional efforts, climate adaptation planning and vulnerability assessments, ocean and coastal management, youth internships, and capacity building. The number and size of Tribes differs by BIA Region.

| BIA Regions | *Population | Tribes | Total Awards | Total Funded |
|---|---|---|---|---|
| Alaska | 82,574 | 227 | 42 | $4,520,994 |
| Eastern | 69,873 | 29 | 12 | $695,412 |
| Eastern Oklahoma | 164,888 | 20 | 14 | $908,162 |
| Great Plains | 131,996 | 16 | 7 | $812,596 |
| Midwest | 118,015 | 36 | 23 | $1,522,971 |
| Navajo | 200,000 | 1 | 6 | $676,693 |
| Northwest | 106,747 | 45 | 103 | $10,034,179 |
| Pacific | 54,864 | 104 | 45 | $3,990,966 |
| Rocky Mountain | 73,444 | 8 | 5 | $604,567 |
| Southern Plains | 56,141 | 24 | 13 | $446,179 |
| Southwest | 73,144 | 26 | 10 | $643,434 |
| Western | 128,110 | 42 | 11 | $674,175 |
| TOTALS | 1,259,796 | 578 | 291 | $25,530,327 |

BIA TRIBAL AWARDS BY REGION




## Resilience Strategies

BIA TCRP seeks to support both BIA staff and Tribes to consider climate in every department and planning endeavor. Through Tribal Nations Tools and Stories in the U.S. Climate Resilience Toolkit, Tribal *Climate Dashboards* to federal-wide resources (http://bit.ly/2magV5Z), and Tribal-specific data at the data.gov Climate Data Initiative, BIA TCRP seeks to provide more self-serve resources to compliment 1on1 support being expanded to include a BIA Regional Liaisons co-located with CSCs and hosted by inter-tribal groups. to build

Tribal Climate Resilience Resources


BIA TCRP supports the next generation by hosting a K-12 student photo contest, coordinating with other federal-wide partners to host 10th-12th graders for a summer youth climate leadership summit, and supporting Americorps to place skilled Vista Volunteers in Tribal communities and Tribal College-based support projects.

BIA TCRP staff visit BIA Regions, Offices, and Tribes and attend conferences to coordinate with Tribes and Partners to continually expand support networks. Protecting and promoting Traditional Knowledges / Traditional Ecological Knowledge integration in every climate project to ensure the continuity of Tribal values and lifeways must always be emphasized (See TK / TEKs resources at: https://on.doi.gov/2lvG4V6).

Finally, BIA TCRP hopes to encourage non-tribal partners everywhere of the benefits of *indigenuity* - holistic, land-based knowledge, connections, and relationships gained by following the leadership of Tribes building resilience nationwide.

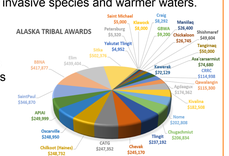
## Alaska Region

In the northernmost latitudes, the Alaska Region experiences more extreme temperature increases. Sea ice no longer controls where marine mammals may be found close by under safe hunting conditions. Berries and large game are often no longer found in their accustomed range; fisheries are impacted by invasive species and warmer waters.

### CLIMATE CONCERNS

- Rising Sea Levels
- Melting Permafrost / Glaciers
- Coastal Erosion / Sea Ice Loss
- Extreme River Flooding
- Subsistence Food Scarcity
- Increased Wildfires

ALASKA TRIBAL AWARDS




### FUNDED STRATEGIES

Alaska Native Villages (ANVs) are small, so BIA TCRP funds have often been leverage by organizing through Alaska Native nonprofits, which coincide with the 12 Alaska Native Regional Corporations.

The Southeast Alaska Tribal Toxins (SEATT) partnership coordinated through the Sitka Tribe tests recreational and subsistence shellfisheries for toxins, monitors for harmful algae blooms, and seeks to increase local foods in the diet of SE Alaskans http://bit.ly/2loxGqM

The Chugach Regional Resources Commission (CRRC) Climate Change Adaptation Project developed rich CAP resources - https://on.doi.gov/2m0cL0F

Bristol Bay Native Associations (BBNA) provided region-wide training and planning support to integrate Traditional Knowledges into a GIS for subsistence harvest of marine mammals.

In the Calista region, an Oscarville pilot project is designed to promote community-based planning for all area Tribes. The Norton Bay Inter-Tribal Watershed Council (NBITWC) sponsored by Native Village of Elim has completed a climate action plan and training on a variety of adaptation strategies for area Tribes http://bit.ly/2mkBfSV

The Alaska Native Tribal Health Consortium (ANTHC) has worked with EPA, CDC, and a variety of other partners, in addition to BIA and IHS, to provide assessment, observation networks, and community-based support services throughout the state https://on.doi.gov/2lKiWVG

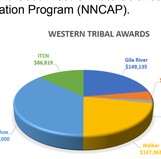
## Western Region

In the Western Region, hotter, drier summers have increased wildfires and invasive species. Regional, State-level, and National intertribal organizations are becoming more active in climate support efforts in partnership with NOAA CLIMAS and the Southwest Climate Science Center, Native Nations Climate Adaptation Program (NNCAP).

### CLIMATE CONCERNS

- Drought Severity
- Food Scarcity
- Outbreaks of Pests
- Reduction of Water Availability
- Increased Wildfires
- Air Quality / Respiratory Illness

WESTERN TRIBAL AWARDS




### FUNDED STRATEGIES

Individual Tribes including the Gila River Indian Community, AZ, Walker River Paiute Tribe, NV, and the Washoe Tribe, NV have been in the process of developing climate adaptation plans. The Intertribal Council of Nevada is also working to assist all Nevada Tribes to assess climate-related water availability issues.

Other activities in the Western Region not funded by BIA TCRP that support Tribes and Climate include Native Waters on Arid Lands and the Desert Research Institute efforts out of the University of Nevada, Reno. The University of Arizona Southwest Climate Science Center, Native Nations Climate Adaptation Program (NNCAP) works with the Southwest Climate Science Center (CSC) and NOAA CLIMAS to develop Tribal Climate Profiles that support climate adaptation planning. NNCAP also hosts the Southwest Tribal Climate Change Network that provides monthly webinars on a variety of climate topics and other expanding support - http://www.nncap.arizona.edu. BIA TCRP sponsors a Regional Tribal Climate Liaison at the SW CSC through the American Indian Higher Education Consortium (AIHEC) that will also work to assist Tribes both obtain more specific support and share climate science needs more directly.

Another important adaptation strategy includes a partnership between the Hopi Tribe and Waterock, L3C to establish a Hopi Raincatcher program, which trains youth as an alternative career track in advanced rain harvesting methods and native plant reestablishment through diverse funding and international networks of support - https://www.facebook.com/HopiRaincatchers/

## Navajo Region

In the Navajo Region, representing one of the largest regional Tribal populations composed of a single Tribe, a drier, hotter climate impacts a growing population facing growing water and food scarcity through the loss of traditional ranching and land management practices.

### CLIMATE CONCERNS

- Drought
- Food Scarcity
- Cultural Continuity
- Limited Water Resources

NAVAJO TRIBAL AWARDS: $676,693


**Figure 2.3.** How vulnerability and adaptive capacity factors interact with changes in climate, hydrology, and ecosystems to create impacts. Adapted from Cozzetto et al. 2013.

### FUNDED STRATEGIES

The Navajo Nation has developed both a nation-wide vulnerability assessment and a comprehensive adaptation plan.

The Priority Species Vulnerability Assessment (http://bit.ly/2mtBWGj ) considered golden eagle, mule deer, desert bighorn sheep, mountain lion and the American black bear, as well as Pinyon Pine, Yucca, Mesa Verde Cactus, Navajo Sage and Salt Cedar to better develop protection and restoration strategies.

The comprehensive Climate Adaptation Plan (http://bit.ly/2lerXTj) detailed water resources and ecosystem change, impacts to farming, ranching, biodiversity, forests, human health, energy operations, and infrastructure

Navajo Nation has employed youth interns to assist communities in a growing awareness of the impacts and strategies available to address sand dune mobilization, water scarcity, limited ranching options, and economic alternatives.

The Navajo Nation is active in the Southern Rockies LCC, which worked with the Tribe to develop a Conservation Planning Atlas component for Connectivity of Habitats on Navajo Nation Lands - http://bit.ly/2lKzVqP

A recent BIA TCRP award is designed to enhance nationwide training and planning on a community basis to compliment community conservation plans. Some BIA agency-level staff also assist with integrated resource planning efforts.

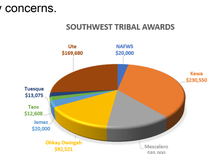
## Southwest Region

The Southwest Region has experienced increasing drought and wildfires, less snowpack and more stress on water resources. Native Pueblos have retained remnants of lands that they held before either the Spanish and the United States became active in the area, but climate change impacts provide new sovereignty concerns.

### CLIMATE CONCERNS

- Extended Drought
- Regional Fire Hazard
- Traditional Farming
- Decreases in Surface Water, Snowfall and Precipitation

SOUTHWEST TRIBAL AWARDS




### FUNDED STRATEGIES

Southwest Tribes work with other entities include training and project support through the South Central Climate Science Center and the Southwest Climate Hub. Pueblo Tesuque (http://bit.ly/2mpUj1W) and Mescalero Apache Tribe (http://bit.ly/2mHFBj5 ) both work closely with the U.S. Forest Service and other state and local forest managers to co-manage forest resources, reduce fire hazards, and control pests, as well as, to establish sophisticated greenhouse systems and native food preservation strategies.

USDA supported Pueblo Isleta to restore landscapes and reduced wildfire hazard, while improving habitat for the Mexican Spotted Owl and migratory birds. In partnership with nearby Kirkland Air Force Base and the support of Texas Tech, Pueblo Isleta also successfully restored a culturally important wetland.

Pueblo Jemez, in partnership with its Flower Hill Institute, leads a *Water and Climate Working Group* for area Tribes to tackle a variety of issues together. Pueblo Jemez serves as the NM lead on the Southern Rockies LCC steering committee to assist in adapting large-landscape-level vulnerability assessments to more localized Tribal concerns.

Pueblo Sandia provides rainwater harvesting training to enhance wildlife to both surrounding Tribes and partners nationwide. Santa Ana Pueblo studies juniper die off with sophisticated GIS and remote sensing techniques to develop ways to restore them. Pueblo Santo Domingo (Kewa Pueblo) manages a large Natural Resources Vista Youth Volunteer Program in a variety of landscape and restoration projects. Kewa Pueblo has also launched a community-based climate adaptation planning process.

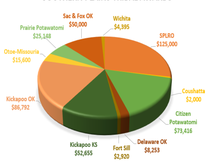
## Southern Plains Region

In the Southern Plains Region, analyzing climate change impacts is confounded by changing land development practices and increased variability in precipitation and recent extended drought.

### CLIMATE CONCERNS

- Air Quality
- Extreme Drought
- Groundwater Depletion
- Forest Health
- Cultural Resources
- Wildlife Impacts
- Soil Health
- Altering crop growth cycles
- Heat waves

SOUTHERN PLAINS TRIBAL AWARDS




### FUNDED STRATEGIES

BIA TCRP funded five vulnerability assessments for Citizen Potawatomi Nation, Fort Sill Apache, Wichita and Affiliated Tribes, Kaw Nation, and Otoe-Missouria Tribe with the support of the University of Oklahoma, College of Architecture, Regional and City Planning Division.

Each assessment focused on cultural resources, emergency management systems, flood and wildfire management, economic development, quality of life, water resources, food security, cultural impacts, and homeland resources Surveys were conducted to gauge members perceptions of climate change, which also revealed an inherent ability to adapt to changing conditions and intense challenges. Next steps included hydrological studies, expanded water storage projects, additional conservation activities, and seeking additional funding sources. A video of lessons learned from the five case studies is available - https://youtu.be/h69PWIwCXtY

In 2012, the Kickapoo Tribe of OK completed a Climate Change Vulnerability Assessment (http://bit.ly/2IZoysR), which is being leveraged with BIA TCRP funding to develop a climate change adaptation plan for high-priority areas or interest.

The South Central Climate Science Center provides comprehensive climate training for both youth and adults in close coordination with BIA Southern Plains staff.

The Southern Plains Region also served as a pilot for the first annual Youth Climate Photo Contest that BIA TCRP then expanded nationally for K-12 students - https://on.doi.gov/2lUfXXE

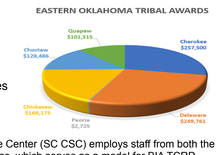
## Eastern OK Region

In the Eastern Oklahoma, native trees and plants used for creating traditional tools and games are becoming scarce. Tribes are working with federal and other partners to reestablish river cane and hickory tree stands, which provide both environmental and cultural benefits.

### CLIMATE CONCERNS

- Wildfire Hazard Mitigation
- Drought
- Extreme Weather Events
- Reduction in Aquatic Species
- Loss of Key Plant Species

EASTERN OKLAHOMA TRIBAL AWARDS




### FUNDED STRATEGIES

The South Central Climate Science Center (SC CSC) employs staff from both the Chickasaw and the Choctaw Nations, which serves as a model for BIA TCRP Regional Tribal Liaisons being deployed to other CSCs throughout Indian Country. Currently, liaisons train not only Eastern OK Tribes, but Southern Plains and Southwestern Tribes in NM to use sophisticated climate analysis and focus on a variety of adaptation strategies.

Soon after the SC CSC was established with Tribal Nation members, native and non-native researchers developed *Listening to the Rain* - in which Tribal members discuss their observations, understanding of and responses to climate change and variability (https://vimeo.com/91082165).

For over 10 years, the USGS Water Science Center has assisted Tribes understand surface water and groundwater monitoring changes, flood inundation and other water information for making decisions. BIA TCRP Funding assists the Choctaw and Chickasaw nation leverage this knowledge to plan for drought.

The Delaware Tribe, Delaware Nation, and Shawnee Tribe recently received BIA TCRP funding to develop their own climate adaptation plan focused on environmental resources.

The Cherokee Nation is developing wind and solar energy projects, including solar -powered vehicle charging stations and heat pumps. Cherokee Nation Environmental Programs (CNEP) supports Tribes beyond its boundaries with air monitoring, home energy audits, and river cane reestablishment on both public and private lands for traditional basket weaving with Choctaw Nation and others. They also completed a BIA TCRP funded Climate Adaptation Plan.